A STATEMENT OF MINISTRY PRIORITIES: 1985-1990

BC

Ministry of Environment

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BRITISH COLUMBIA MINISTRY OF ENVIRONMENT
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1985 - 1990

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1. INTRODUCTION

British Columbia's Ministry of Environment is responsible for the preservation of a quality environment for all living resources, including man. Its mandate involves several management activities, many of which are interrelated, as well as cooperation with other provincial and federal agencies.

This document is a summary of the ministry's nine major programs to explain how each program contributes toward maintaining a quality environment. There are three sections:

(1) An outline of the ministry's management philosophy, which is based on three major objectives that guide ministry performance and individual programs;
(2) Legislation governing the organization and implementation of ministry policies;
(3) Major program objectives and management activities needed to achieve them.

2. MINISTRY OBJECTIVES AND MANAGEMENT PHILOSOPHY

The ministry, under its legislation, is responsible for the management of water resources (quality and quantity), air quality, freshwater sport fisheries, mariculture and wildlife. It also regulates waste disposal and pesticide use. Government-wide services for surveys and resource map production, organization or emergency responses to disasters and the operation of an environmental laboratory are other ministry responsibilities.

A management philosophy based on three broad objectives has been established to coordinate programs.

Objective 1

To ensure long-term use of all renewable environmental resources through policies of conservation and environmental protection.

The ministry believes in the basic premise that environmental management must be enduring: a high-quality and diverse natural environment must be passed on to future generations. Though long-term goals must predominate, short-term decisions, which do not provide complete environmental protection, must be made periodically to support economic or social policies of government.

Unpolluted air, water and land, together with the fauna and flora they support, represent British Columbia's natural heritage. They are resources

which provide much of the province's employment and recreational opportunities. Ministry priorities to ensure these irreplaceable assets are managed wisely for the future include:

- establishing criteria and objectives for air and water quality, and water allocation for safe assimilation of wastes and sustainable use of water;
- compiling inventories of all environmental resources to understand their productive abilities and the level of use that can be sustained;
- strengthening enforcement of environmental legislation to protect and preserve environmental quality;
- strictly controlling disposal of potentially hazardous materials such as pesticides and toxic wastes that cannot be assimilated immediately and safely.
- encouraging the recycling of waste products to reduce the amounts discharged into the environment.

Environmental management criteria and ambient objectives are being established for a number of watersheds and air management units. Permits and licences issued under the ministry's legislation help maintain these ambient objectives.

To preserve other aspects of the natural environment the ministry is involved in a number of government planning and review processes. The environmental impact of resource and industrial developments are assessed and the ministry negotiates appropriate mitigative measures to ensure socially acceptable levels of environmental management are met.

Objective 2

To promote social and economic benefits to the province from the use of environmental resources, while conserving the resource base.

The environmental resources under the ministry's jurisdiction provide an array of economic benefits, some obvious, some not so easily measured. The province's abundant water resources are essential for agriculture, industry, commercial and municipal growth. These resources also enable the province to enjoy relatively cheap hydroelectricity and provide habitats for valuable sport and commercial fisheries. The abundant and diverse wildlife resources attract hunters from around the world. The natural environment is also the setting for many outdoor activities, which contribute to both individual and community propserity. Prudent use of the environment to assimilate discharges of waste and reduce costs of waste management provides less obvious but significant values.

In addition to these economic benefits, environmental management has intangible qualities. Many regard the environment as a spiritual endowment, as something intrinsically valuable and not simply a base for economic development. This perspective views society as interdependent with the natural world.

Research to better understand complex ecological relationships is a ministry priority. Society and the environment influence one another and decisions which change ecosystems must be made cautiously. Ministry activities aimed at reaching this objective include:

- developing mariculture and sport fish resources to increase economic and employment opportunities from the recreational and commercial use of freshwater and tidal fisheries under provincial jurisdiction;
- enhancing wildlife resources and their habitats to increase commercial and recreation use of wildlife and expand support services;
- allocating water resources for agricultural expansion and commercial and industrial development, including hydro-electric power where compatible with the ministry's conservation principles;
- encouraging the private secter to design and build waste treatment facilities.

Objective 3

To protect life, health and property from natural and man-made disasters.

Nature is a powerful, dynamic and sometimes destructive force that society must respect. Natural occurrences such as floods, avalanches, rock and mud slides can have a profound effect on human settlement, resource developments, and our feelings of security.

The preferred strategy in dealing with natural hazards is to avoid them by monitoring natural processes, identifying hazardous conditions and working with other provincial ministries and local governments to encourage intelligent, responsive land use and zoning. When substantial private investment has already been made and the use of flood-prone lands is inevitable, the ministry regulates developments as well as construction and maintenance of dams, dykes and other flood-control structures if it can be socially and economically justified.

The ministry also coordinates a provincial emergency measures program to organize planning and provide regional help to individuals and communities victimized by natural or man-made disasters. The program also attempts to limit the environmental impacts of oil or toxic chemical spills.

Activities over the next five years to achieve this objective include:

- improving flood forecasting and emergency measures;
- flood plain planning to regulate development on flood-prone areas;
- ensuring dams and dykes are regularly inspected and properly maintained;
- strengthening the network of emergency response organizations across the province.

The ministry will continue to improve its management capabilities by expanding its use of information systems to monitor and evaluate its objectives.

3. MINISTRY MANDATE

The mandate of the ministry is governed by the Ministry of Environment Act and the Environment Management Act. These statutes establish the duties, powers and functions of the Minister of Environment in the management, protection and enhancement of environmental resources.

The ministry has organized its activities into nine major programs:

Water Management
Fisheries Management
Wildlife Management
Waste Management
Air Management
Pesticide Management
Surveys and Resource Mapping
Provincial Emergency Program
Administration

The Ministry of Environment Act, Section 4(c) establishes the ministry's broad mandate, namely "to manage, protect and conserve all water, land, air, plant life and animal life, having regard to the economic and social benefits they may confer on the Province". The Environment Management Act provides the management framework. This act empowers the ministry to establish resource management objectives, undertake resource inventories, prepare plans, ensure that environmental assessments of major projects are carried out and to hold public inquiries.

The Environment Management Act also establishes a set of policies for dealing with environmental emergencies, including the closure or modification of developments that are causing, or are likely to cause damage to the environment. An Environmental Appeal Board is created under this act to hear any reasonable appeal on any specific activities of the ministry.

In addition to the Ministry of Environment Act and Environment Management Act, specific duties and functions of the ministry are defined under the following 19 statutes:

- Air	- Weather Modification Act
- Fisheries	- Fisheries Act - Fish Inspection Act
- Pesticides	- Pesticide Control Act
- Emergency Coordination	- Emergency Program Act
- Surveys and Mapping	- Boundary Act
- Waste	- Waste Management Act Litter Act

- Water	- Water Act
	- Water Utility Act
	- Flood Relief Act
	- Drainage, Ditch and Dyke Act
	- Dyking Authority Act
	- Utilities Commission Act
	- Land Title Act
	- Dyke Maintenance Act
	- Libby Dam Reservoir Act
- Wildlife	- Wildlife Act
	- Firearm Act
	- Creston Valley Wildlife Management Area Act
- Other	- Industrial Operation Compensation Act

The ministry has specific powers to provide advice and information about legislation administered by other ministries and the federal government. Examples include the Municipal Act, Environment and Land Use Act, Land Act, Mines Act, Mineral Act, and the federal Fisheries Act.

3.1 OPERATING FRAMEWORK

The ministry has approximately 1,400 full-time staff positions. The actual number of employees may be greater, particularly in summer when temporary appointments are made to undertake seasonal field work.

The ministry contains two divisions - the Administrative and Technical Services Division and the Regional Operations Division: all other Program Directors report directly to the Deputy Minister's Office (Figure 1). Internal coordination of programs and policies is done through three standing committees - the Executive Committee, the Program Directors' Committee and the Regional Directors' Committee.

The ministry has five regional offices, located in Nanaimo, Surrey, Kamloops, Prince George and Nelson. There are five sub-regional offices, in Williams Lake, Penticton, Smithers, Cranbrook and Fort St. John (Figure 2), and 46 district offices, mainly staffed by Conservation Officers. Each regional office is headed by a Regional Director who is responsible for implementing and coordinating all programs in their regions.

The ministry's Executive Committee, comprised of the Deputy Minister, the Assistant Deputy Minister, and the Executive Director of Administration and Technical Services, is responsible for overall policy direction, coordination of programs and establish most of budget and staff allocations between programs and regional offices.

The Program Directors' responsibilities include developing long-range plans to meet program objectives, submitting annual budgets, recommending policies and management strategies, and monitoring progress in achieving objectives.

The Regional and Branch Directors implement activities to attain program objectives and report progress semi-annually to the executive. The

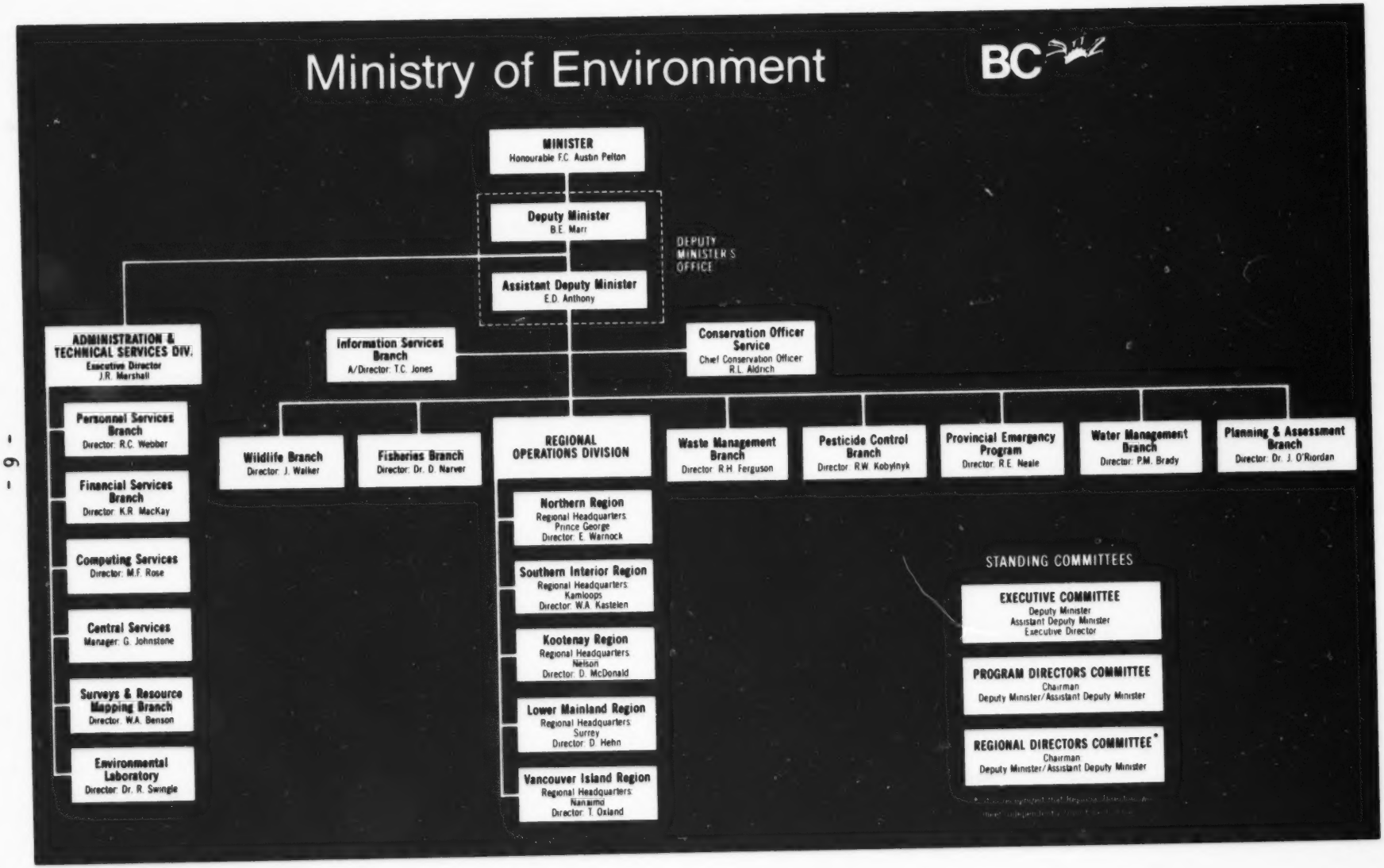

Ministry of Environment
BC
MINISTER
Honourable F.C. Austin Pelton
Deputy Minister
B.E. Marr
Assistant Deputy Minister
E.D. Anthony
DEPUTY MINISTER'S OFFICE
ADMINISTRATION & TECHNICAL SERVICES DIV.
Executive Director
J.R. Marshall
Personnel Services Branch
Director: R.C. Webber
Financial Services Branch
Director: K.R. MacKay
Computing Services
Director: M.F. Rose
Central Services
Manager: G. Johnstone
Surveys & Resource Mapping Branch
Director: W.A. Benson
Environmental Laboratory
Director: Dr. R. Swingle
Information Services Branch
A/Director: T.C. Jones
Conservation Officer Service
Chief Conservation Officer
R.L. Aldrich
Wildlife Branch
Director: J. Walker
Fisheries Branch
Director: Dr. D. Narver
REGIONAL OPERATIONS DIVISION
Northern Region
Regional Headquarters: Prince George
Director: E. Warnock
Southern Interior Region
Regional Headquarters: Kamloops
Director: W.A. Kastelein
Kootenay Region
Regional Headquarters: Nelson
Director: D. McDonald
Lower Mainland Region
Regional Headquarters: Surrey
Director: D. Hehn
Vancouver Island Region
Regional Headquarters: Nanaimo
Director: T. Oxland
Waste Management Branch
Director: R.H. Ferguson
Pesticide Control Branch
Director: R.W. Kobylnyk
Provincial Emergency Program
Director: R.E. Neale
Water Management Branch
Director: P.M. Brady
Planning & Assessment Branch
Director: Dr. J. O'Riordan
STANDING COMMITTEES
EXECUTIVE COMMITTEE
Deputy Minister
Assistant Deputy Minister
Executive Director
PROGRAM DIRECTORS COMMITTEE
Chairman
Deputy Minister/Assistant Deputy Minister
REGIONAL DIRECTORS COMMITTEE*
Chairman
Deputy Minister/Assistant Deputy Minister

FIGURE 1

Province of British Columbia
REGIONAL BOUNDARIES
FOR THE
MINISTRY OF ENVIRONMENT
August, 1984
Regional Boundary and Number —3
Regional Centre
Sub Regional Centre
NORTHERN
5
SOUTHERN INTERIOR
3
KOOTENAY
4
LOWER
MAINLAND
2
VANCOUVER ISLAND
1
PACIFIC
OCEAN
DIXON ENTRANCE
PRINCE RUPERT
PRINCE GEORGE
QUEEN
CHARLOTTE
SOUND
CROSS SOUND
STEPHENS
PASSAGE
LYNN
CANAL
ATLIN
LAKE
BABINE
LAKE
STUART
LAKE
TAKLA
LAKE
QUESNEL
LAKE
KAMLOOPS
OKANAGAN
LAKE
KELOWNA
VERNON
PENTICTON
KOOCANUSA
LAKE
WILLISTON
LAKE
PEACE
RIVER
FRASER
RIVER
COLUMBIA
RIVER
KOOTENAY
RIVER
SKEENA
RIVER
STIKINE
RIVER
LIARD
RIVER
NANAIMO
PORT
ALBERNI
VICTORIA
BELLINGHAM
CALGARY

FIGURE 2

ministry's administrative structure relies on close cooperation among programs and directors and strong ties with other government agencies at the federal, provincial and local levels.

3.2 MINISTRY BUDGET AND REVENUES

The Ministry of Environment's 1985-86 budget is $98 million (Figure 3). The two largest programs are Water Management and Administration and Technical Services, with budgets of $27 million and $21.2 million respectively. The next largest budgets are for Fisheries Management with $13.9 million, Waste Management with $8.9 million, Surveys and Resource Mapping with $7.7 million, and Wildlife Management with $7.6 million. The Air Management Program has a budget of $2.9 million, the Provincial Emergency Program's budget is $1.7 million with a further $2.4 million set aside to cover initial response costs in case of emergencies and Pesticide Control has a budget of $600,500. In addition, some $4 million has been set aside for capital construction projects for water resource management. The Habitat Conservation Fund, a special fund to support enhancement of fish and wildlife resources and habitats is expected to be $1.09 million at the end of the fiscal year.

Ministry revenue estimates for 1985-86 are $222.4 million, composed of various fees, licences and royalties, as well as revenues from the federal government (Figure 4). The largest source of revenue is water rentals and recording fees, estimated at $207.1 million. Wildlife and fisheries revenues, largely from licence sales, amount to $10.4 million. Net sales of maps and air photos by Surveys and Resource Mapping are expected to be $215,000 and Marine Resource's fees and licences are estimated to generate about $130,000. In addition, contributions totalling up to $4.5 million from the federal government cover cost-shared programs such as emergency relief and construction for flood-control projects.

4. MANAGEMENT STRATEGIES

The following section provides, for each program; a statement of its goal and objectives, information on major activities supporting objectives, and a list of program management priorities over the next five years.

These program objectives are subservient to the three ministry objectives outlined in Section 2. There are important links between objectives requiring integration at the executive level, such as establishing ambient quality objectives for air and water under the Air and Water Management Programs, and maintaining these objectives through waste management control measures. There can also be competition when water from streams is needed for agricultural, municipal and industrial uses, as well as for fisheries, recreation and water quality management.

4.1 ADMINISTRATION PROGRAM

The goal of the Administration Program is:

to provide policy direction, corporate resources and support and technical services required by the ministry to achieve its mandate efficiently and effectively.

FIGURE 3

MINISTRY OF ENVIRONMENT: 1984-85 BUDGET BY PROGRAM

MINISTRY BUDGET $98 MILLION

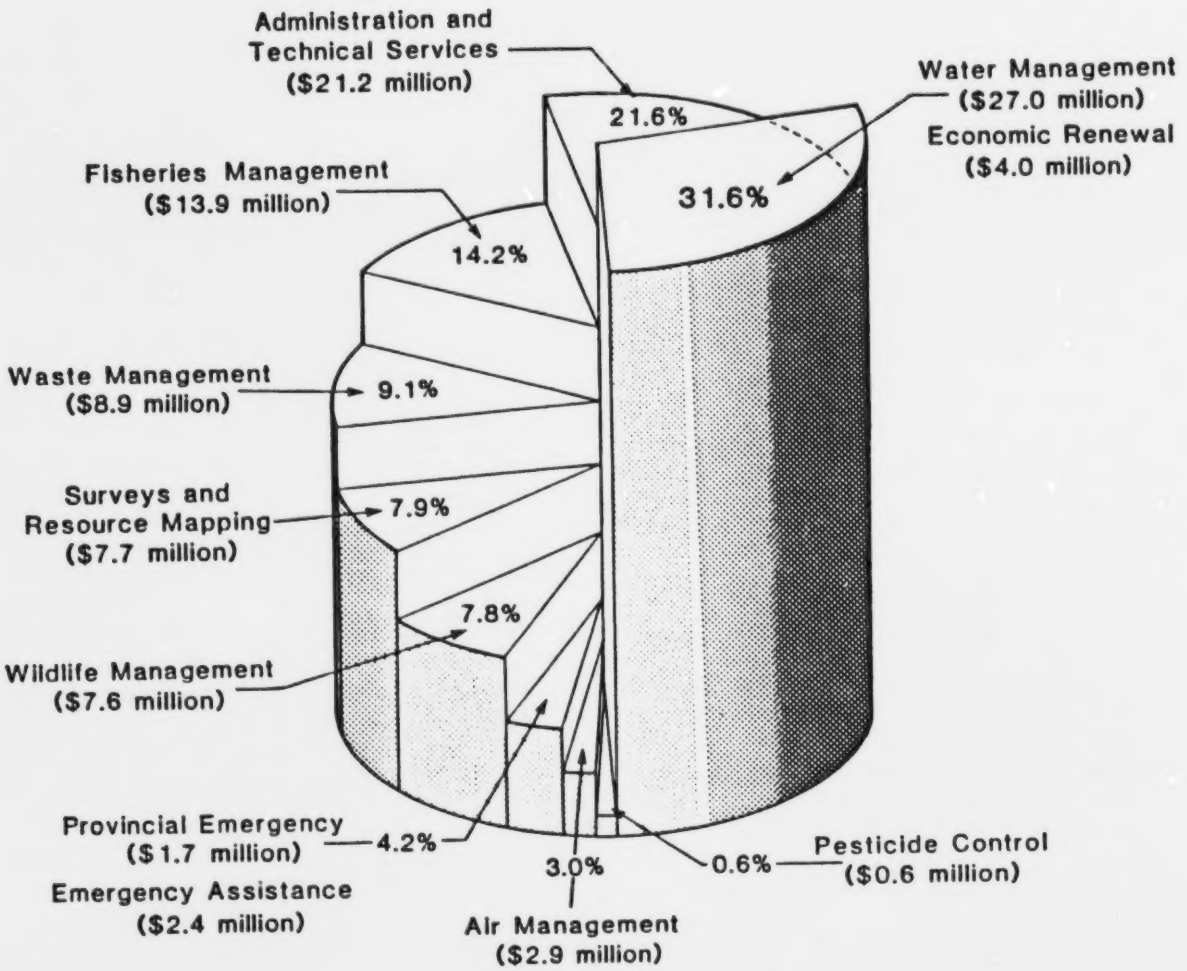
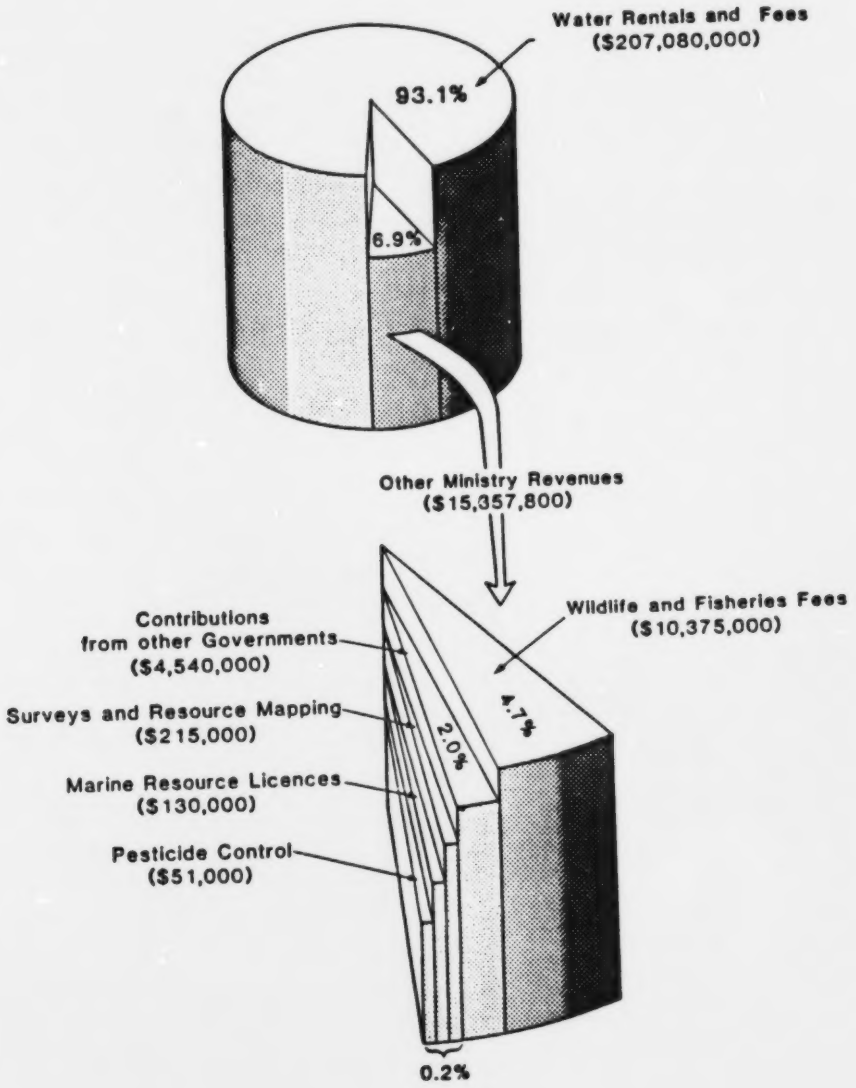


FIGURE 4

MINISTRY OF ENVIRONMENT: 1984-85 REVENUE ESTIMATES

MINISTRY REVENUES $222,437,800



The Administration Program provides a range of technical and support services to the other ministry programs. They include financial, personnel, computer and communication systems support as well as specialized services such as the Environmental Laboratory, planning and assessment and the Conservation Officer Service.

Objective 1 **To provide executive direction, coordination and control to guide program delivery.**

The ministry executive gives policy direction, provides guidance, coordination, and communication to directors regarding policy decisions to promote consistent, knowledgeable application.

Objective 2 **To provide comprehensive financial management services in support of Ministry programs.**

Financial Services provides a service to ministry programs which includes directing and assisting the preparation of annual spending estimates, control of allotted appropriations, revenues, and recoveries, assets control, payroll administration, operating cost accounting and accounts payable, and the development and dissemination of financial policy and procedures and internal financial advice.

Objective 3 **To provide comprehensive personnel services in support of Ministry programs.**

Personnel Services provides ministry programs with recruitment and selection services, classification and labour relations expertise, organizational analysis, staff development and safety, and salary administration services.

Objective 4 **To provide comprehensive computing and systems service to ministry programs..**

Computing Services provides analysis of computing systems and information needs. It ensures that systems are not duplicated by installing systems that are shared or are accessible by appropriate users. It facilitates ordering, installation and maintenance of systems and provides ministry liaison with B.C. Systems Corporation.

Objective 5 **To provide chemical and biological analyses to ministry programs.**

The Environmental Laboratory carries out sample analysis, chemical testing (water, wastewater, sediments, biological materials, ambient air samples) and biological testing (fresh water plankton, periphyton, invertebrates).

Objective 6 **To provide comprehensive administrative services to all ministry programs.**

Central Services provides accommodation, including specialized facilities, for all ministry staff, through liaison with B.C.B.C. It

ensures the availability of telecommunications, photocopiers, security, and mail/courier; it provides inventory control, transportation, purchasing, insurance and other services for all Ministry programs.

Objective 7 **To provide planning, project assessment and economic services to help integrate ministry programs and achieve the overall ministry goal.**

The Planning and Assessment Branch coordinates ministry planning. It supports the Executive Committee in developing the ministry's corporate plan, Program Directors in preparing program plans and Regional Directors in drafting sub-regional and project-specific plans. Over the next five years, the ministry will consolidate its various planning activities and implement an evaluation procedure to assess how effectively its management objectives have been achieved.

The branch coordinates the ministry review of environmental assessment and impact management reports prepared by developers in private and government sectors. During recent years, it has reviewed approximately 20 mining proposals, 10 major energy developments and presented ministry briefs at several public inquiries.

The Economic and Social Analysis Section provides technical support to ministry programs and assists the Executive Committee in developing economic strategies to increase revenues associated with managing the province's environmental resource base.

The Conservation Officer Service is part of the Administration Program. It provides enforcement services to the Waste, Wildlife, Pesticides, Fisheries and Water Management Programs. The C.O. Service operates out of the ministry's regional and district offices and has five objectives:

Objective 1 **To promote compliance with environmental legislation through public education and public involvement.**

Conservation officers attend meetings of various public groups, schools, and government agencies to explain the ministry's legislation. They also inform people of the Observe, Record and Report Program and solicit cooperation from people in protecting the environment.

Objective 2 **To investigate possible violations and prosecute where warranted, under the direction of the regional director who sets regional priorities in accordance with overall ministry enforcement policy and individual program objectives.**

Conservation Officers conduct patrols, take part in special operations and undertake lengthy, complicated investigations into possible infractions of environmental legislation. In 1984, 88 field Conservation Officers investigated 8,040 possible violations and laid 3,052 charges, resulting in 2,232 convictions.

Obective 3 **To help people troubled by problem or nuisance wildlife to protect private property and ensure public safety.**

The Conservation Officer Service dealt with almost 6,000 nuisance or dangerous wildlife complaints in 1984. The work involved the removal of some 900 bears, cougars, wolves and coyotes and the placement of poisoned baits where necessary.

Objective 4 **To attend to environmental emergencies in accordance with regional emergency response plans.**

The Conservation Officer Service is an integral part of the regional emergency response team and as such, deals with such matters as they arise.

Objective 5 **To provide other support to ministry programs as prescribed by the Regional Director.**

Although the prime responsibility of Conservation Officers Service is enforcing laws, they also carry out, when time permits, other non-enforcement tasks required by the Regional Directors.

Increased emphasis in the Conservation Officer Service will be placed on hunting and fishing regulations, especially in areas where fish and wildlife populations are threatened. As specific ambient air and water quality objectives are established for areas where there are numerous waste discharges, conservation officers will be especially vigilant to ensure these environmental objectives are protected.

4.2 AIR MANAGEMENT PROGRAM

The goal of the Air Management Program is:

to maintain atmospheric quality in British Columbia to ensure good health and a quality environment; and to provide atmospheric information necessary to manage air quality.

The objectives and activities to meet them are:

Objective 1 **To establish air quality standards and to monitor major airsheds in the province to ensure the standards are maintained.**

Criteria associated with seven air quality contaminants have been prepared and are being reviewed. Criteria for an additional 25 contaminants will be developed over the next five years. Air quality criteria provide two sets of standards -- Level A and Level B. These standards will be used to establish ambient objectives for various air management units in the province. Adherence to these objectives will ensure adequate protection for human health, vegetation, soils and lakes. A pilot project for setting local air management objectives has begun recently in Prince George. Over the next five years, air quality objectives will be established for approximately 30 areas in the province.

There are 43 continuous air quality monitors operating in the province. A computer system is being revised to produce immediate reports when ambient objectives are exceeded. A special monitoring program for acid rain has been implemented around the Strait of Georgia.

Objective 2 **To develop and implement airshed management systems to ensure air quality which is conducive to good health and to the maintenance of the province's natural resources.**

Under the Air Management Program Plan a control strategy for ozone and a pilot project for an air quality index in the Lower Mainland has been implemented. Long term control plans will also be developed for acid rain in Georgia Strait and total reduced sulphur in Prince George. Monitoring, emission and dispersion studies are being conducted in order to develop control plans for air quality in Prince George: emissions inventories have been initiated for major air pollutants. Computerized pollution dispersion models continue to be implemented. A real-time air quality data system is in operation in Prince George and Trail, and will soon be implemented in the Lower Mainland for Regional Managers to identify immediately any developing air quality problems.

Objective 3 **To provide atmospheric data and expert services for ministry programs and other agencies.**

There are approximately 100 meteorological stations which support programs of the ministry and other agencies. The ministry answers 500 requests a year for meteorological data and sits on various interagency advisory and coordinating committees. Expert services also include development of stack testing codes for the province and development of an audit procedure for industrial stack monitors.

Objective 4 **To regulate weather modifications.**

Since there has been only one licence application for weather modification, in 1983, there is no program activity to report for this objective.

The priorities of the Air Management Program over the next five years are:

- Develop air quality criteria and ambient objectives.
- Implement a control plan for ozone in the Lower Mainland.
- Develop a control plan for acid rain in the Georgia Strait area.
- Develop a control plan for total reduced sulphur (TRS) in Prince George.

4.3 FISHERIES PROGRAM

The goal of the Fisheries Program is:

To provide social and economic benefits through conservation and management of freshwater fisheries, marine resources and habitats.

The objectives that support this goal are:

Objective 1 **To provide the habitat required for the production of freshwater fish and the culture of marine fish, shellfish and plants.**

Nearly half a million freshwater anglers in B.C. catch eight million fish a year. About 75 percent of these fish are produced in natural systems. Mariculture sites are also dependent on the preservation of natural marine habitats. Both freshwater and coastal habitats can be degraded by activities such as forestry, sewage disposal, land fills, dyking, agriculture and pesticide use. The ministry maintains an extensive referral system to protect fish habitats and offer advice on protective measures.

Objective 2(a) **To achieve specified levels of production and distribution of freshwater fish populations while maintaining the genetic integrity of desirable species.**

B.C. supports the second largest freshwater sport fishery in Canada. While the province's sport fisheries are world famous and the use by anglers continues to grow, the catch has remained at about eight million fish for the past 20 years while the individual success rate has declined markedly. A major priority is to improve the balance between the increasing demand by anglers and the production of sport fish through stock assessment and inventory, habitat improvement, an expanded fish culture program, and regulations to control excessive angler use.

Objective 2(b) **To provide abundant and diversified recreational opportunities as well as economic benefits from freshwater sport fishing.**

The fundamental philosophy in the management of B.C.'s freshwater sport fishery is to provide a wide range of angling opportunities. A balance between angler demand and fish supply is the goal. The most heavily fished waters in the province are in the southern interior from the East Kootenay to the Chilcotin Plateau. It is an area of intensive fisheries management with particular emphasis on stocking of highly productive lakes.

Objective 3(a) **To provide a sustainable harvest of natural marine plants and wild oysters.**

Wild oysters and marine plants have significant economic and recreational value. Proper management of these resources entails careful assessment and protection of the stocks and regulation of their use.

Objective 3(b) **To encourage the culture of fish, shellfish and marine plants and to provide technical support to those engaged in mariculture.**

Mariculture in B.C. is still in a formative stage even though the oyster industry has been in existence since the 1920's. New technology and product demands indicate substantial growth is possible in this decade. Salmon farming is expected to increase rapidly in the next 10 years from present production of 250 tons a year to 10,000 tons. Under the Fisheries Program crown Leases will be managed and technical extension services, to ensure efficient growth of these industries, will be offerred.

Objective 4 **To maintain the statistical base for fish buying and processing activities and to provide quality control and consumer protection for fish and fish products handled or processed in B.C.**

The collection of statistics and the licensing and inspection of fish buyers and processors increases the stature of the B.C. fishing industry. Quality control of fish and fish products is vital to the continued viability of the industry and the health of the consumer. The public reacts negatively to any reduction in the quality or nutritional value of fish products.

The Canada - British Columbia General Fisheries Agreement which was signed in February 1985, is a major step in the management of fisheries. The agreement coordinates planning and application of federal and provincial programs through development of subsidiary agreements, memoranda of understanding, and guidelines. A wide range of joint fisheries activities are presently underway, the most important of which is the $215 million Salmonid Enhancement Program (SEP) and a comprehensive habitat inventory to assess additional enhancement opportunities. Subsidiary agreements being developed also cover mariculture, habitat protection, planning, and economic evaluation.

The priorities of the Fisheries Management Program over the next five years are:

- Cooperate in the federal/provincial Salmonid Enhancement Program.
- Encourage the bugeoning mariculture industry.
- Rationalize supply and demand for freshwater sport fisheries.
- Strengthen the provincial fish culture system.
- Inventory lake and stream habitats and assess fish stocks.
- Improve and enforce fisheries regulations and habitat protection measures.
- Develop a new Fisheries Act.
- Resolve outstanding compensation agreements (Arrow, Williston and Libby).
- Rationalize interceptions of steelhead by commercial and food fisheries.
- Complete program, regional and operational fisheries plans.

4.4 PESTICIDE CONTROL PROGRAM

The goal of the Pesticide Control Program is:

to protect human health and maintain environmental quality by ensuring that pesticides are used safely.

The activities to meet this goal are:

Objective 1 **To encourage the prudent use of pesticides according to label directions and regulations.**

There are more than 500 pesticide licences issued each year in B.C. About 1,100 vendor sites, 250 permit sites and 740 pest control service sites are inspected annually by the Pesticide Control Branch. To streamline

the system, a new permit system and new tracking system for all permits is being phased in, and a new classification system of pesticides is being implemented.

Objective 2 **To minimize the impact of pesticides on public health.**

Liaison is maintained with other agencies monitoring pesticide poisonings, and pesticide residues in food, water and soil. New curricula are being developed for agricultural pesticide courses, and a survey is being conducted to assess the public's understanding of pesticide use and controls.

Objective 3 **To minimize the impact of pesticides on environmental quality.**

Pesticide residues in water, soil and marine organisms are monitored for a minimum number of permit sites, and the Pesticides Program is involved in the development of monitoring programs for non-point sources of pollution. Approximately 150 pesticide abuse complaints are investigated annually.

Objective 4 **To improve public understanding of pesticide use in the province.**

About 200 inquiries from the public about pesticides are answered through the program each year. Some 65 adult extension courses are offerred every year on the use and handling of pesticides. Among the special studies is an assessment of the economic impact of pesticide use in the province.

Pesticide Control Program priorities over the next five years are:

- Monitoring surface and groundwater quality related to pesticides.
- Improving adult training in the use and hazards of pesticides, particularly in agriculture.
- Revising the classification of pesticides.

4.5 PROVINCIAL EMERGENCY PROGRAM

The goal of the Provincial Emergency Program is as follows: **to provide guidance, leadership and coordination with all levels of government, ministries and Crown corporations, so resources are used to the greatest advantage in the event of an imminent or actual emergency or disaster; to mitigate the effects on the people, environment and property; to ensure continuity of government.**

The objectives and supporting activities of the program are as follows:

Objective 1 **To protect life and minimize damage from man-made and natural disasters.**

This objective is supported by several activities:

- Assuming responsibility for an appropriate level of preparation and emergency planning at the provincial, regional and local government level;
- Initiating emergency planning arrangements with the federal government, international jurisdictions, territorial governments and other provinces;
- Providing warning systems, information programs and emergency reporting and response communications;
- Coordinating emergency response and maintenance of essential services during an emergency.

Objective 2 **To protect life and minimize damage from incidents involving special wastes or dangerous goods.**

This objective is supported by planning and coordination services of regional and headquarters response systems in the event of spills of oil and dangerous substances.

Objective 3 **To oversee recovery from disasters by coordinating the disaster relief and assistance.**

In the event of a major disaster, provincial assistance is coordinated by the Emergency Program, funded through Orders-in-Council. Some of the activities include Tsunami (tidal waves) warning and preparation, regional emergency telecommunications, emergency broadcasting, municipal emergency planning and inter-ministry coordination. The program also liaises with Emergency Planning Canada, Canadian Coast Guard, Canadian Forces and other agencies when necessary.

Program priorities over the next five years include:

- Update of legislation to improve emergency planning at the municipal level.
- Development of correspondence courses in the identification of dangerous goods and a course for municipal officials and area coordinators on emergency planning.
- Development of computer programs to analyze patterns and repetitions within disaster claims to process claims accurately and predict incident recurrence.
- Continue updating and initiating information programs for the public through preparation of hazard mitigation pamphlets.
- Interjurisdictional planning will be brought up to date through meetings with representatives from Alaska, Alberta, Montana, Idaho, Washington and other jurisdictions.
- The program will become active in coordinating wartime planning in the province.

4.6 WASTE MANAGEMENT PROGRAM

The goal of the Waste Management Program is:

to protect the environment of B.C. by controlling the impact of polluting substances.

The major activities to meet these objectives are:

Objective 1 **To preserve the quality of the land environment of the province at or above acceptable levels by managing the discharge of pollutants.**

Approximately 70,000 tons of special waste are generated in the province annually. A small portion of this waste is stored at six provincial storage facilities, with two more storage facilities under construction. To deal with these wastes, the Waste Management Branch has prepared regulations to control the transportation, storage, treatment and disposal of all special wastes. Over the next five years, the level of industrial activity and the volume of dangerous materials being handled are expected to increase. This increased activity in the handling of dangerous material will require stringent regulations. Activities will include follow-up of manifests, inspection of unauthorized storage and disposal sites, and investigation of chemical dumping. During this period, it is projected that 500 generators will be registered, 20 carriers will be licensed, and 100 storage facilities and 25 disposal facilities will be permitted. Because of the level of public interest generated in special waste issues, significant amounts of ministry time will be necessary to provide adequate responses.

There are some 850 refuse permits in the province to regulate the disposal of about 3.5 million tons of refuse a year. Approximately 12 percent of household solid waste is recyclable, but in some areas of the province, recycling is not economically feasible. The Waste Management Program encourages the development of recycling programs and administers controls over about 700 million beverage containers a year through regulations and enforcement.

Control strategies for landfill problems in the Lower Mainland are being developed through the Lower Mainland Refuse Project. Other solid waste management plans are being considered in Nanaimo and the East Kootenays.

Accidental spill prevention and contingency plans are being developed throughout the province by handlers and users of hazardous substances to minimize spills and improve cleanup response. The Waste Management Program responds to about 300 accidental spill reports a year.

Objective 2 **To preserve the quality of air in the province at or above acceptable levels by managing the discharges of pollutants to the atmosphere.**

There are about 850 air emission permits in the province; approximately 10 percent of which are under review at any time. A recently completed inventory of air quality in B.C. indicates that air quality is generally above ambient objectives, with some improvements noted over the past two years. Two major problem areas are Prince George, for total reduced sulphur, and the Lower Mainland, for ozone. Emissions testing is continuing in Prince George and controls are being considered in the Lower Mainland in conjunction with the Greater Vancouver Regional District. For significant discharges, a stack testing program has been developed and is being

implemented throughout the province. The Pollution Control (Discharge) Objectives are being revised to reflect advances in pollution control technology.

Objective 3 **To preserve the quality of the water environment of the province at or above acceptable levels by managing the discharge of pollutants.**

There are about 1,550 effluent permits in the province: approximately 10 percent are under detailed review at any one time. A recently completed inventory of water quality on selected streams and lakes indicates water quality is generally being maintained at a high level, although in areas such as the lower Fraser, Serpentine, Nicomekl and San Jose Rivers, and the Okanagan watershed, water quality has deteriorated over the past 15 years.

A major water quality management plan is currently being implemented in the lower Fraser estuary. Waste management planning is also proposed for the Okanagan Valley to improve lake quality. Numerous sub-basins are being monitored to check draft water quality objectives proposed by the ministry. Waste management planning by municipalities is being encouraged to provide for their expansion. Approximately $150 million is spent annually on sewage treatment to handle primarily household sewage.

The program priorities over the next five years are:

- Special waste management.
- Phosphorus control program for the Okanagan Valley.
- Lower Fraser estuary water quality management.
- Non-point source pollution in the Lower Mainland, Okanagan Valley and San Jose River.

4.7 WATER MANAGEMENT PROGRAM

The goal of the Water Management Branch is:

to manage the provincial water resources to maximize their contribution to the social and economic development and well-being of all British Columbians.

The objectives of the program and major activities are:

Objective 1 **A high level of water resource quality for groundwater, fresh surface water and estuarine and coastal marine waters. It will be achieved through the establishment of resource quality objectives, water quality monitoring, watershed planning, referral and consultative processes, and assistance in the control of nuisance aquatic vegetation.**

Province-wide surface water quality criteria are being established for five contaminants, with a target of establishing criteria for about 25 high priority contaminants over the next five years. Water quality criteria relate the level of contaminants to their effects on various water uses. Criteria are a prerequisite for establishing ambient water quality objectives for specific water bodies. Site-specific water quality objectives are

being established for 10 basins, with a five-year target of establishing objectives for about 35 basins. Four major water quality studies and five watershed plans are currently underway. Water quality monitoring to support the setting of objectives is planned for approximately 35 basins, and water quality trend reports will be issued on a regular basis. Over the next five years, it is anticipated that 50 water quality trend monitoring stations will be established. Primary monitoring stations will be located close to waste discharges and, together with trend monitoring stations, will be representative of the quality of the water body as a whole.

The impacts of land development and waste disposal on groundwater quality will be assessed through review an estimated 10 proposed projects, annual sampling of about 80 sites, preparation of approximately 250 map overlays, and regular reports on trends in groundwater quality. Financial and technical support is also provided in a cost-sharing arrangement with three local authorities to help control and minimize the spread and effect of nuisance aquatic plants.

Referral processes involve the Waste Management Branch, Fisheries Branch and the Ministries of Forestry, Municipal Affairs and Energy, Mines and Petroleum Resources.

Objective 2 **Assured protection of licensed water rights and instream uses through allocation and regulation of the supply and use of surface water under the Water Act.**

There are approximately 2,000 water licences issued each year in the province, with a total of about 37,000 licences under regulation. Each year approximately 700 water licences are amended or cancelled and about 1,100 Section 7 approvals are issued for short term uses of water or changes in and about a stream. Bills are prepared and sent out for 37,000 water licences: an estimated $204 million in rentals will be collected in 1985-86. Plans over the next five years include an upgrading of licensing information systems and development of education programs to improve water use in areas where water shortages occur.

Objective 3 **Reduced potential for property damage and loss of life from flooding and erosion by runoff forecasting, snow surveys, emergency action, regulation of flood plain development, implementation of flood and erosion protection projects, and inspection and maintenance enforcement for dykes and dams.**

All major dam licence applications are reviewed with particular regard to public safety and the Water Management Program advises on regulation of major reservoirs. Floods are forecast 80 percent of time within 10 percent of actual discharges for the Fraser River, within 20 centimetres of actual lake levels on Okanagan Lake and 12 hours in advance of peak stage for the Squamish River. To assist in providing run-off forecasts, about 1,450 snow surveys are conducted annually and snow bulletins are issued. Approximately 160 square kilometers a year of flood plain are mapped for 60 official settlement plans and processing of almost 1,500 bylaws and subdivision applications. Technical and financial support is provided to local authorities and individuals in the construction of 20 to 30 projects annually to protect against flooding and erosion.

Five studies are currently underway to provide the necessary understanding of floods and debris torrents and the hazard that they pose. Protective works worth $5 million are being designed and constructed for the lower Fraser Valley. A number of feasibility studies and drainage projects are undertaken under the Agricultural Rehabilitation and Development Subsidiary Agreement (ARDSA).

Three hundred and sixty kilometers of dykes and about 60 major and 400 minor dams are inspected annually. The program also ensures 100 percent operational capacity of the Vedder River flood corridor management program and the Okanagan Valley bottom lakes.

Objective 4 **An assured adequate level of water service to the public by privately-owned utilities or requiring works to appropriate technical standards, regulate water utilities, and provide technical support, including project management, to funding ministries.**

Some 290 utilities are regulated under the Water Utility Act. Major technical services are provided to Municipal Affairs and regarding the design and construction of water supply systems. This includes approximately 100 investigations a year involving improvement districts, several major water and sewer proposals, over 20 project feasibility studies, and designing and implementing 10 water supply projects.

Objective 5 **An adequate information base on the supply capability of surface water and groundwater resources through the collection, storage and analyses of data.**

More than 140 groundwater observation wells are operated, and information must be compiled annually on 3,000 new wells. Supply capability assessments are undertaken for aquifers and their related surface water resources. Over 500 hydrometric stations are operated to measure surface water flow. Approximately 14 surface water studies a year are done to determine the supply capability and peak and minimum flows for key watersheds. Water storage capability is systematically inventoried by the Water Management Program.

Objective 6 **A high level of public health engineering support for the Ministry of Health through approvals and inspection of water supply sources, supply and treatment works, swimming pools and waste disposal systems.**

In cooperation with the Ministry of Health, the Water Management Program approves approximately 400 water supply systems and swimming pools construction each year. About 70 water supply reports are prepared annually and forwarded to the Ministry of Health. Technical assistance is also provided to the Ministry of Health on waste disposal and water quality through sewage disposal reports, provisional certificates, and approval of septic tanks and pre-fabricated sewage treatment plants.

The Water Management Program priorities over the next five year are:

- Improved service in the regulation of water utilities.
- Surface water quality objectives and monitoring.

- Planning in community watersheds.
- Flood plain planning and mapping.
- Groundwater quality and quantity
- Safety inspection for minor dams.
- Improved inspection level for dykes.
- Improved service for water licence applications and licences.

4.8 WILDLIFE MANAGEMENT PROGRAM

The goal of the Wildlife Management Program is:
to maintain the diversity and self-sustainability of species representative of the major biophysical zones of the province and to ensure that, within the constraints of land capability and biological limits of each species, wildlife is abundant enough to meet the aesthetic, cultural, recreational and economic needs of society.

Current activities to meet the objectives are:

Objective 1 **To minimize the deleterious effects of man's activity on wildlife habitats and to protect or acquire those habitats critical to wildlife.**

Provincial guidelines are being developed to protect wildlife habitats during logging, and a habitat handbook is being prepared to encourage other resource users to protect habitats. Two additional handbooks covering other ecological areas will be developed over the next five years. Only 10 to 15 percent of the province is currently mapped in sufficient detail to adequately assess habitat capability. Over the next five years, the Wildlife Management Program intends to produce eight 1:50,000 scale maps a year to cover a further five percent of the province. In addition, three sheets of 1:250,000 scale biophysical maps will be produced annually to provide a more general assessment of wildlife capability.

The Wildlife Management Program continues to participate in governmental referral systems and negotiates with major developers to provide compensation for lost habitats. The program handles approximately 14,000 referrals a year, about 4,000 of which are associated with forestry. Less than five percent of the total land base in the province is protected from development pressures (four percent are provincial and national parks). In the next five years, the referral process will be streamlined and at least 10 per cent of referrals will be monitored annually to determine the effectiveness of the process.

Key wildlife habitats are also acquired through established special purpose funds, bequests, donations, and via leases. Since 1971, about 700 hectares have been purchased by the province, and about five new properties a year are leased from the Nature Trust of B.C. Over the next five years, a further 1,000 to 2,000 hectares of key habitat may be purchased and another 800 to 1,400 hectares of key habitat owned by the Nature Trust of B.C. will be leased to the province for a nominal fee. Wildlife Management areas may be established for 10 to 15 areas by 1990.

Objective 2 **To maintain the natural diversity of wildlife species and their habitats.**

B.C. contains the greatest diversity of wildlife species that remain publicly accessible in any northern country in the western world. The status of over 600 wildlife species is monitored to aid in the meeting of this objective. Protection and enhancement of four endangered species continues. These are the sea otter, up from nil in 1970 to more than 340 in 1984; burrowing owls, being re-introduced in the south central Interior of the province; white pelicans, stable at 10 pairs; and Vancouver Island marmots, up from 10 in 1979 to more than 230 in 1984.

Objective 3 **To manage wildlife populations and habitats to provide consumptive use of wildlife consistent with program plans.**

Five-year regional and provincial wildlife plans are being developed on the basis of information on wildlife productivity and inventory of populations compared with current and projected demands for consumptive and non-consumptive recreational use.

Key ungulate populations and habitats are being enhanced through methods such as transplants and prescribed fire to provide populations for consumptive use by 220,000 resident and 7,500 non-resident hunters. Licence revenue from these hunters was approximately $6 million in 1983/84. Annual expenditures by hunters were estimated, from a survey in 1981, at over $100 million.

Harvests of the 65 big game species are monitored and carefully regulated to ensure this objective is met. Several big game populations are being enhanced through predator management; for example, Vancouver Island deer, Kechika area moose, caribou and sheep, and Muskwa area caribou, sheep and moose. Enhancement work is funded mainly through the Habitat Conservation Fund, and in cooperation with other agencies such as Ducks Unlimited. The Habitat Conservation Fund allocates about $700,000 a year for the enhancement of wildlife involving about 50 to 60 projects.

Objective 4 **To manage wildlife populations and habitat to provide non-consumptive use consistent with program plans.**

In 1983 a non-game wildlife program was established. A survey, conducted under the program, found that 85 percent of the people in the province are interested in wildlife, and 70 percent participate in non-hunting activities involving wildlife. People spend approximately $490 million a year in direct (e.g. photography trips) and indirect (e.g. purchasing bird books) enjoyment of wildlife. The Habitat Conservation Fund had 15 non-game enhancement projects submitted for funding in 1985/86. Over the next five years, a projected 70 to 80 projects a year can be undertaken through the Habitat Conservation Fund if the fund is augmented by increased surcharges and support from non-hunters to the expected annual budget level of $1.2 million. Status reports were issued in 1984 on four non-game species.

Objective 5 **To minimize the danger to life and damage to private property caused by wildlife.**

The Conservation Officer Service, on behalf of the Wildlife Management Program, handles almost 6,000 wildlife complaints a year. The work involves

the removal of about 900 bears, cougars, wolves and coyotes and the placing of poison baits, where necesary.

Objective 6 **To promote new commercial uses of wildlife, such as trapping and guiding industries.**

B.C. leads Canada in humane trapping methods and regulations. There are approximately 6,000 trappers and 2,300 guides and assistants in the province. Trapper education programs have passed 400 students to date.

The Wildlife Program priorities for the next five years are:

- Improved wildlife habitat management.
- Develop five year provincial, regional, and operational wildlife plans - Develop provincial logging guidelines, and a users handbook to minimize impacts on wildlife, in cooperation with the forest industry and the Ministry of Forests.
- Improve ability to acquire or control habitats through established funds, interagency agreements and compensation settlements with the private sector.
- Continue to promote, monitor and regulate public use and benefit.
- Expand the non-game component of the wildlife program to meet objectives identified from recently completed province-wide surveys.

4.9 SURVEYS AND RESOURCE MAPPING PROGRAM

The goal of the Surveys and Resource Mapping Program is:

to provide base and biophysical mapping and survey control to meet the economic and resource management needs of government agencies and the public.

The objectives and support activities are:

Objective 1 **To establish and maintain standards and procedures for provincial mapping, air photography, survey control and biophysical data collection.**

In the past year, the Surveys and Resource Mapping Program has established five specifications and a sixth has been circulated in draft form. All are relevant to the interchange of land management data throughout government and between government and private institutions.

Objective 2 **To develop and maintain an efficient provincial base mapping system and to produce maps as required by government agencies and the public.**

The Surveys and Resource Mapping Program will produce over 1,180 large and medium scale base maps in digital form during the current fiscal year in response to mapping requests from 15 different programs in the provincial government and from six municipalities and regional districts. The program is also attempting to initiate a $24 million project to develop a computerized terrain model of B.C. using private sector resources. It is

an attempt to transfer and develop technology where it can be exported, while fulfilling a short-term information requirement of provincial resource managers.

Objective 3 **To develop and maintain an efficient biophysical mapping system to meet the management requirements of government agencies.**

The Surveys and Resource Mapping Program expects to produce over 290 thematic maps and 10 reports in 1985-86 to satisfy requests from 12 different programs in the provincial government.

Objective 4 **To establish, coordinate and maintain survey control systems required for mapping, engineering, cadastral and boundary purposes.**

The Surveys and Resource Mapping Program has surveyed more than 500 control monuments in the past year for engineering, cadastral, wellsite and mapping activities.

Objective 5 **To respond efficiently to requests from resource management agencies for specific, project-related requirements for remote sensing, mapping and data interpretations.**

The Surveys and Resource Mapping Program responded to four requests for project mapping for the Water Management Program, one for project mapping of the Coquihalla Highway for the Ministry of Transportation and Highways and five requests for project-specific aerial photography totalling more than $250,000, all of which was cost-recoverable.